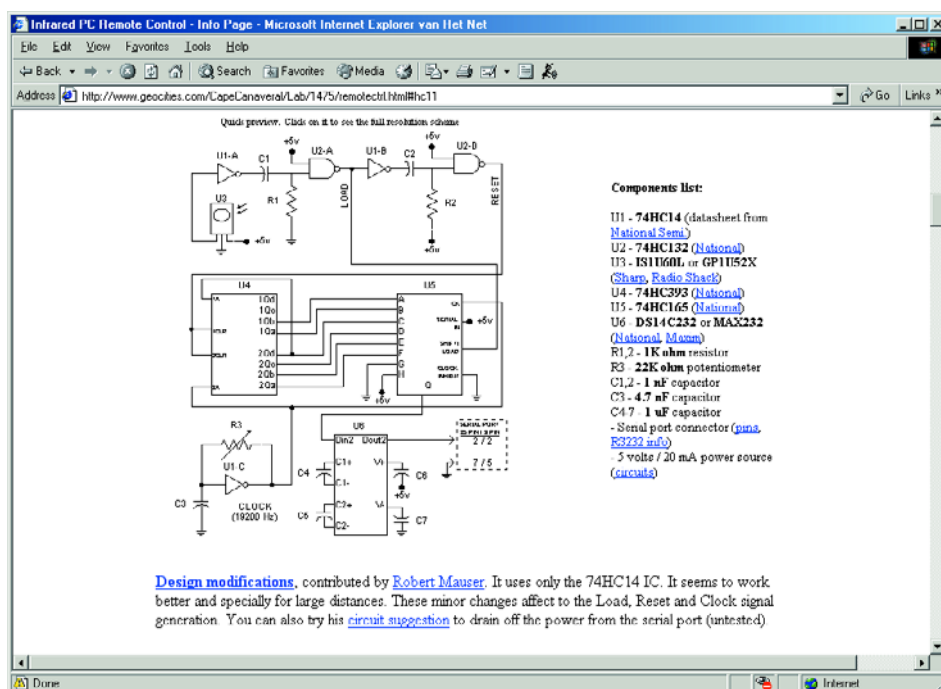


Remote Control for your PC

With a home-made infra-red receiver

By Harry Baggen

With the PC seeing increasing use as a multimedia machine, recording and playing back video and audio, users will soon want to control a number of functions remotely, just as with their TV or hi-fi set. All you need to realise this is a standard infra-red remote control unit, a home-brew receiver circuit and some software.



A number of manufacturers in the consumer electronics sector supply remote controls with special receivers — the complete kit allowing a PC to be controlled from a distance. In many cases, the remote control includes a kind of mouse replacement so you can even move the cursor around on the

screen. The infra-red (IR) receiver usually consists of a small receiver module for connecting to the PC's serial port by way of a cable. The supplied software then looks after the processing of received IR signals. In many cases, a remote control set

is included with a TV card for the PC, although the features then remain limited to a number of essential TV and radio functions.

Fortunately, several alternatives are now available to link a PC to a remote control. Thanks to a number of clever programmers and some really simple hardware it has become possible to use a dead standard remote control transmitter to realise remote control on your PC.

The receiver is, of course, home built, which — we are sure — is unlikely to present problems to readers of *Elektor Electronics*. Incidentally, if you happen to have an IR remote control lying around, say, from a TV card system, you'll find that this may often be used without problems in combination with the programs discussed below.

On the Internet you'll find a variety of articles and web pages discussing home construction of an IR receiver. The designs vary in complexity from five-component 'interfaces' right up to microcontroller-driven gadgets. In all cases, however, you'll have to build up a small circuit. When a microcontroller is used, we

found that in the majority of cases the hex code to program your own MCU is freely available.

How to build an IR Receiver by Alessio Sangalli [1] provides extensive explanations and clear photographs, allowing even beginners to assemble their own IR receiver without too much of an effort. Alessio's design is simple by any standard, consisting of an IR receive module, a voltage regulator and three passive components.

Similar designs, also rich in illustrations and with detailed descriptions may be found on the **Heatseekerz** website [2]. The author, Tom de Keninck, sets a standard how an electronic construction can be described on web pages. The photographs Tom shows us, in combination with a step-by-step approach and the assumption that the reader knows virtually nothing all contribute to the excellent reproducibility of the circuit.

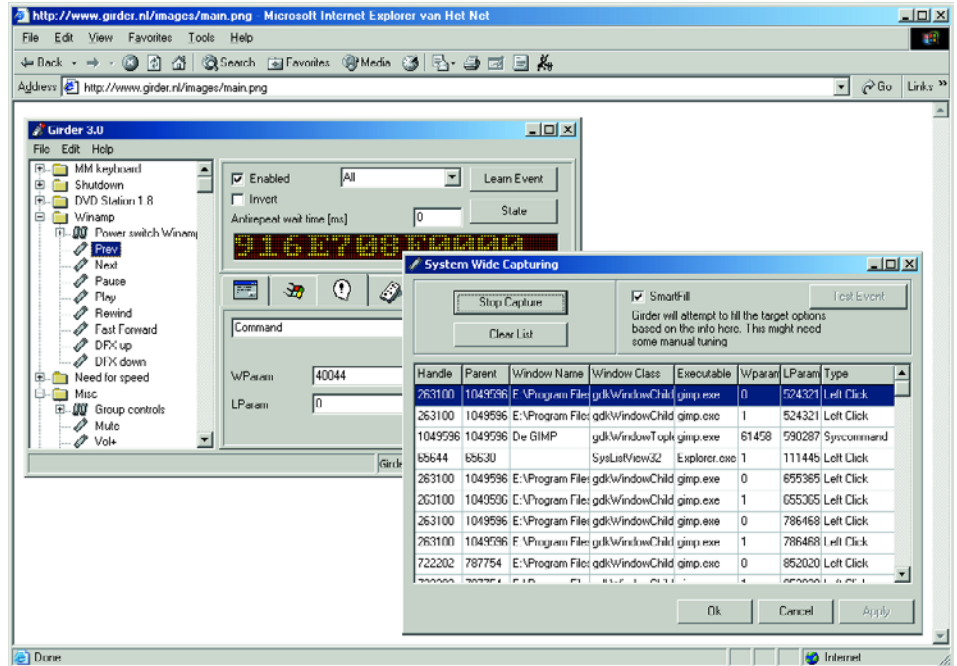
The Infrared PC Remote Control — **Info page** [3] aims a bit wider. Here, we found several receivers discussed — designs with and without microcontrollers. The site also discusses the necessary software and proposes some ready to go solutions. We also found a download link to the shareware program 'PC Remote Control'.

A receiver circuit based on a PIC12C508/509 is discussed at the **UIR page** [4]. The author shows how the circuit may be built from standard components as well as SMDs (surface mount devices).

The **Universal Remote Control Receiver** [5] is a project built around a PIC16F84. According to the description, it is suitable for nearly all commercially available remote controls. Both the microcontroller hex code and the PC layout are available to everyone wishing to build this design. The designer also offers the associated software, DRCS (Dalton Remote Control Software), to run on your PC.

A similar circuit based on the previous design is called the **Universal IR-receiver for serial interface** [6] and may be found on the web pages of the electronics faculty at the University of Ulm, Germany.

Besides hardware (a remote control transmitter and a matching



receiver) you'll also need software to detect and process the serial data, as well as convert it to commands the PC can understand. A universal program that looks after these tasks is called **LIRC** (Linux Infrared Remote Control) [7]. A Windows version of the program is available from the **WinLIRC** homepage [8].

Girder [9] is also a well-known *Windows automation tool* (shareware) capable of recognising and employing lots of remote control signalling formats for linking to Windows programs and PC hardware. The sheer popularity of this program has resulted in many exotic IR formats now being supported thanks to

the contributions of active users. If you don't believe us, just take a look at the list of available plug-ins!

IRAssistant [10], which comes free of charge for private use, also allows mouse movement to be mimicked using the remote control, as well as launch and control programs, run macros, all from the comfy chair.

Finally, we should mention **uICE** [11] by MediaTexX. This shareware is also rich in features when it comes to driving hardware and software. The program is marked by an Office-like user interface, offering an on-screen menu and on-screen display looking very much like the ones you see on modern TV sets.

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Internet Addresses

- [1] How to build an IR receiver: <http://lnx.manoweb.com/lirc/>
- [2] Heatseekerz - remote control: www.heatseekerz.net/index.php?page=articles&id=4&pagenum=1
- [3] Infrared PC Remote Control - Info Page: www.geocities.com/CapeCanaveral/Lab/1475/remotectl.html
- [4] UIR - Universal Infrared Receiver: <http://fly.cc.fer.hr/~mozgic/UIR/>
- [5] Dalton Electronics - URCR: www.dalton-electronics.com/URCR/URCR.aspx
- [6] Universal IR-receiver, Microelectronics Department, University of Ulm: <http://mikro.e-technik.uni-ulm.de/research/urcr.html>
- [7] LIRC - Linux Infrared Remote Control: www.lirc.org/
- [8] WinLIRC Homepage: <http://winlirc.sourceforge.net/>
- [9] Girder: www.girder.nl/
- [10] IRAssistant: www.irassistant.com/dotcom/v_current/
- [11] MediaTexX Software Solutions: www.mediatexx.com/